

Georgia Climate Project

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Conference
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The logo is contained within a white rounded rectangle with a black border and four small white circles at the corners. The word "GEORGIA" is at the top in a black, sans-serif font. Below it, the word "CLIMATE" is written in a large, bold, black, sans-serif font. The letter "I" in "CLIMATE" is replaced by a stylized peach with a green stem and leaf. Below "CLIMATE", the word "PROJECT" is written in a smaller, black, sans-serif font.

GEORGIA
CLIMATE
PROJECT

A multi-year effort by a state-wide consortium to support effective, science-based climate action in Georgia.

Choosing our Energy Future: 2015 & 2016 Town Halls

Café-style conversations:

- Maximizing innovation, economic development and jobs
- Exploring environmental benefits and co-benefits
- Ensuring equity and environmental justice
- Options for design of a market-based system
- Multi-state coordination options, pros, and cons



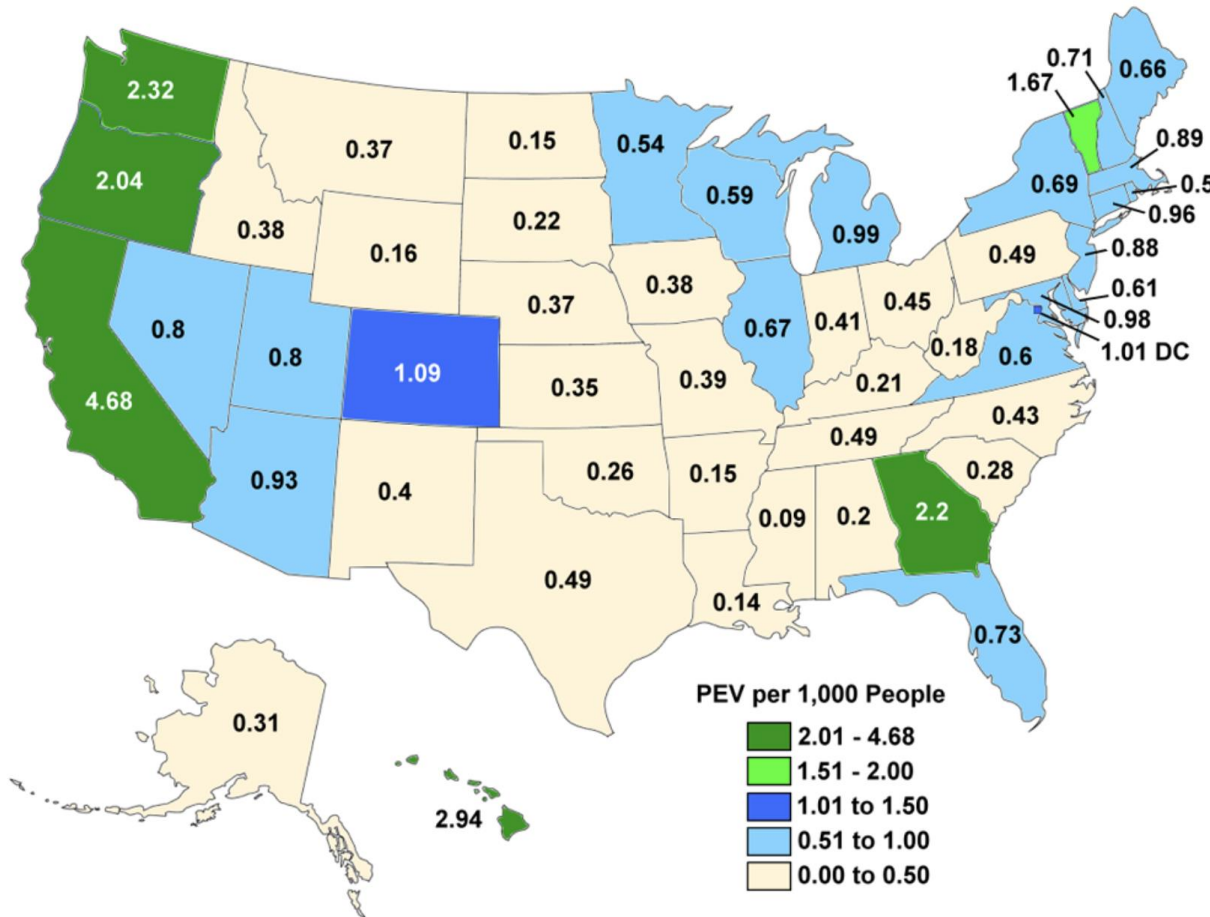
<https://cepl.gatech.edu/workshops/COEF/choosing-our-energy-future>



Georgia Leadership Initiatives & Challenges

- Electric vehicles
- Utility-scale solar
- Atlanta's 100% clean energy goal
- Next new nuclear plant (?)
- Energy benchmarking in Atlanta
- Energy burdens

Georgia is the Only State in the Southeast with >2 EVs per 1,000 People

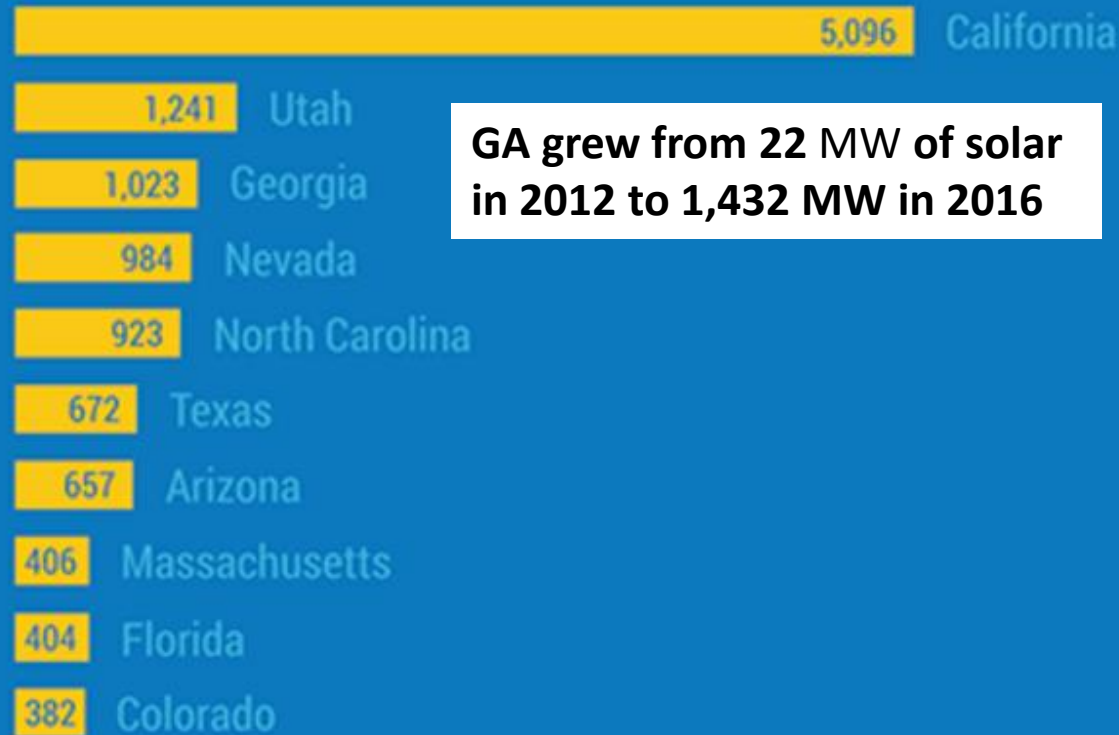


Georgia also plans to lead in “Vehicles-to-Grid” and EV battery sharing

But the market for EVs in Georgia has stalled with the termination of the state tax rebate (despite Georgia Power’s new support for EV re-charging stations).

Georgia was #3 in New Solar in 2016

CAPACITY INSTALLED IN 2016 (mw)



GA grew from 22 MW of solar in 2012 to 1,432 MW in 2016

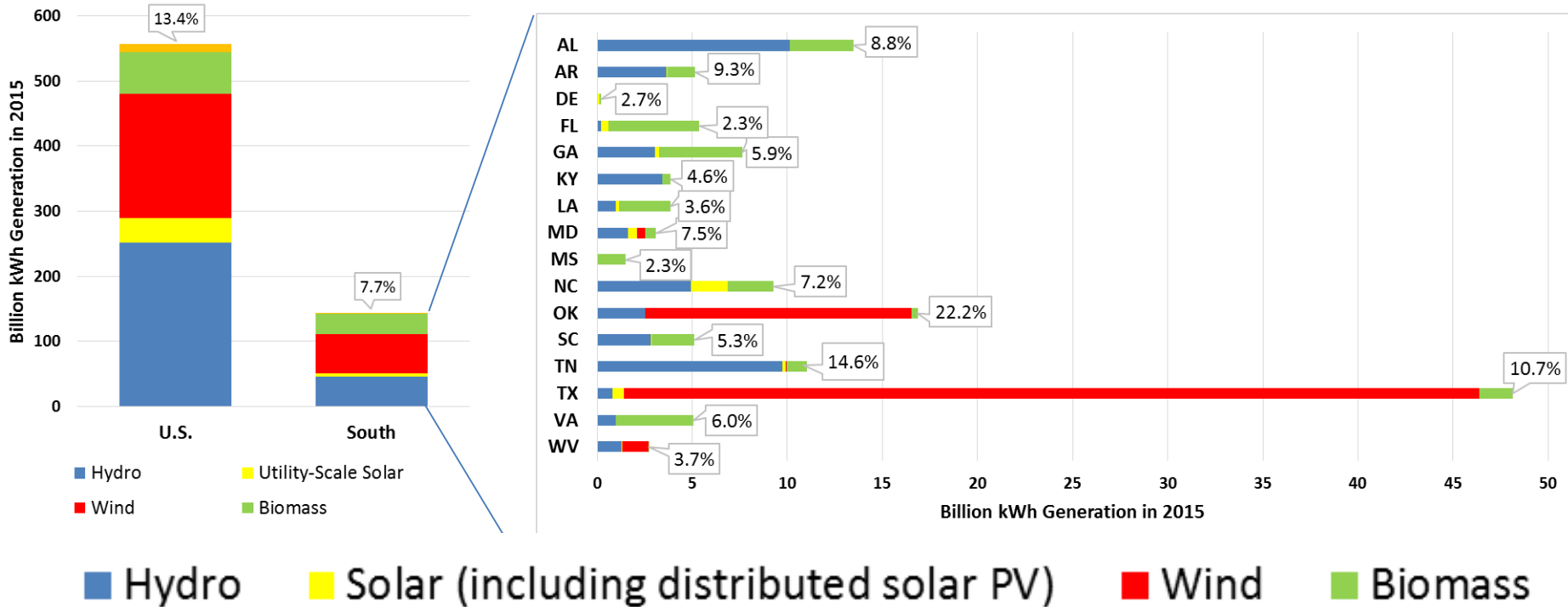


Atlanta's 100% Clean Energy Goal



Source: <https://www.seia.org/research-resources/top-10-solar-states>

The 100% Clean Energy Goal for Atlanta Targets 2035, b/c there's a way to go



Source: U.S. Energy Information Administration, [Electric Power Monthly](#), Table 1.1A, 1.2C-E, 6.2B.

State level data is also available at <https://www.eia.gov/electricity/data/state/>

Note: Distributed generations are estimated. Utility-scale generations are based on reported generation data.

Georgia is Home to the Only U.S. New Nuclear



BRIEF

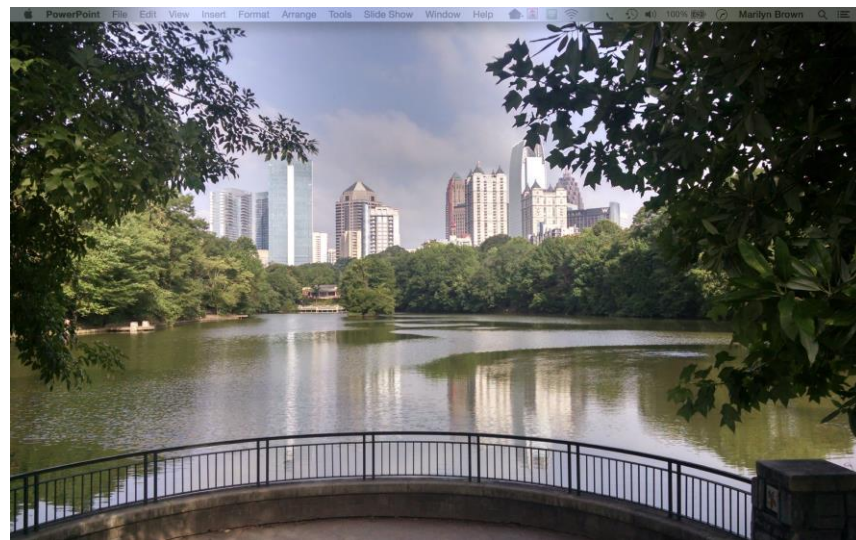
Vogtle nuke cost could top \$25B as decision time looms

By **Gavin Bade** • Aug. 3, 2017

- **The total cost of the Vogtle nuclear plant expansion is likely to exceed \$25 billion.**

Energy Benchmarking of Commercial Buildings in Atlanta

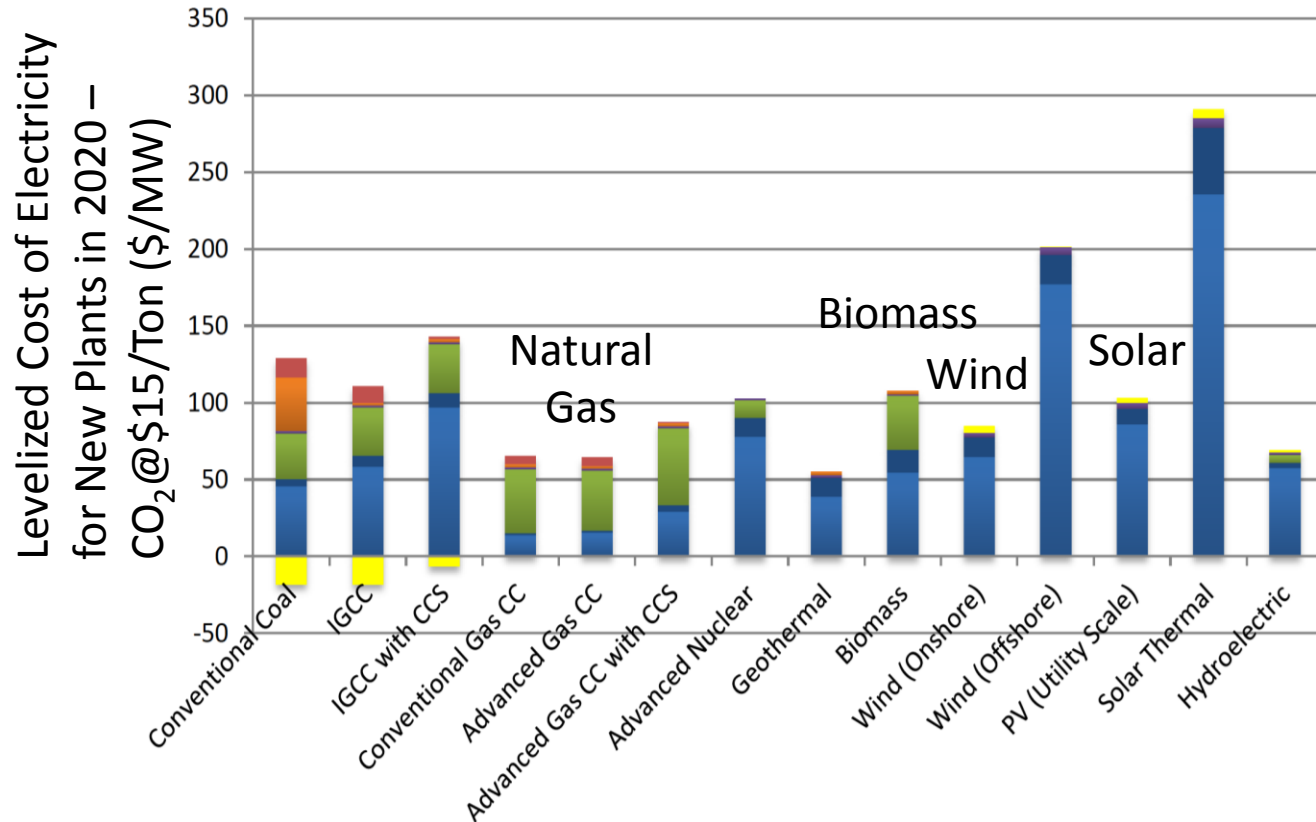
- Atlanta's skyline has long been a symbol of prosperity. What you can't see is that these same buildings are some of the city's largest energy consumers and polluters.
- The city has adopted an energy benchmarking ordinance that will help redraw this energy and environmental profile.
- As a result, high performance buildings will be worth more, and tenants will be empowered.



But What about Households? The Energy Burden in the South is High

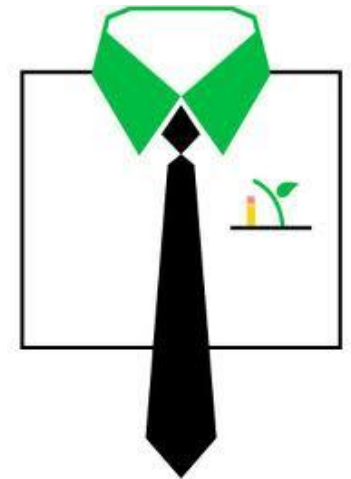
- Atlanta has the fourth highest median energy burden of any city in the U.S. at 5.0%, just less than Memphis at 6.2%, Birmingham at 5.3%, and New Orleans at 5.3%.
- Versus 3.5% average for all U.S. households.
- Low-income households in Atlanta have an average energy burden of 10.2%, the third highest of any urban area in the U.S.
- Low-income Atlanta residents in multi-family housing have particularly high energy burdens, averaging 15.7%.
- This data illustrates a stark contrast with the U.S. Department of Health and Human Services classification of energy burdens above 6% as “unaffordable”.

It's Hard to Compete with Natural Gas (Solar is Already Cheaper than Nuclear): But Where is Energy Efficiency?



Source: National Academies. 2016. The Power of Change: Innovation for Development and Deployment of Increasingly Clean Electric Power Technologies

Changing the Narrative



The U.S. has about 75,000 jobs in coal mining. Automation has had a major impact on this workforce: autonomous trucks work the Powder River Basin....

See: 30-minute CNN discussion: 175,000 live “hits”

https://www.facebook.com/cnn/videos/10156318782866509/?hc_ref=NEWSFEED

Energy Efficiency Jobs

Nearly 1 million U.S. workers spend a majority of their time installing energy-efficient equipment and services.

~66,200 Georgians work in energy efficiency related businesses.

Technologies include:

- Advanced windows & insulation
- High efficiency HVAC
- Smart thermostats
- Efficient lighting and controls
- Energy Star appliances, etc.

MYENERGI LIFESTYLE

More than ever, cars are sharing the same energy source as the home. The average American home uses over 11,000 kWh of electricity every year. But we can do something about it.

Recent technology advancements and utility trends have enabled a typical American middle-class family to significantly reduce their electricity bills and CO₂ footprint by integrating a plug-in vehicle, energy-efficient appliances and a renewable energy source.

Behind all these products is the power cloud computing that takes advantage of lower off-peak electric rates.

The infographic features a dark blue background with a white house silhouette. Inside the house, there are icons for a smart thermostat (showing 68), a smartphone with a Wi-Fi signal, a washing machine, a dryer, a refrigerator, and a water heater. Outside the house, there are solar panels on the roof and a white plug-in electric car (Ford Focus) parked in front. A white cloud with a lightning bolt and a clock icon is at the top right. At the bottom, there are logos for Ford, SunPower, Georgia Institute of Technology, Whirlpool Corporation, and Eaton.

Source: Environmental Entrepreneurs (E2) and E4 The Future. 2016. *Energy Efficiency Jobs in America*.

Solar Jobs

FORT BENNING



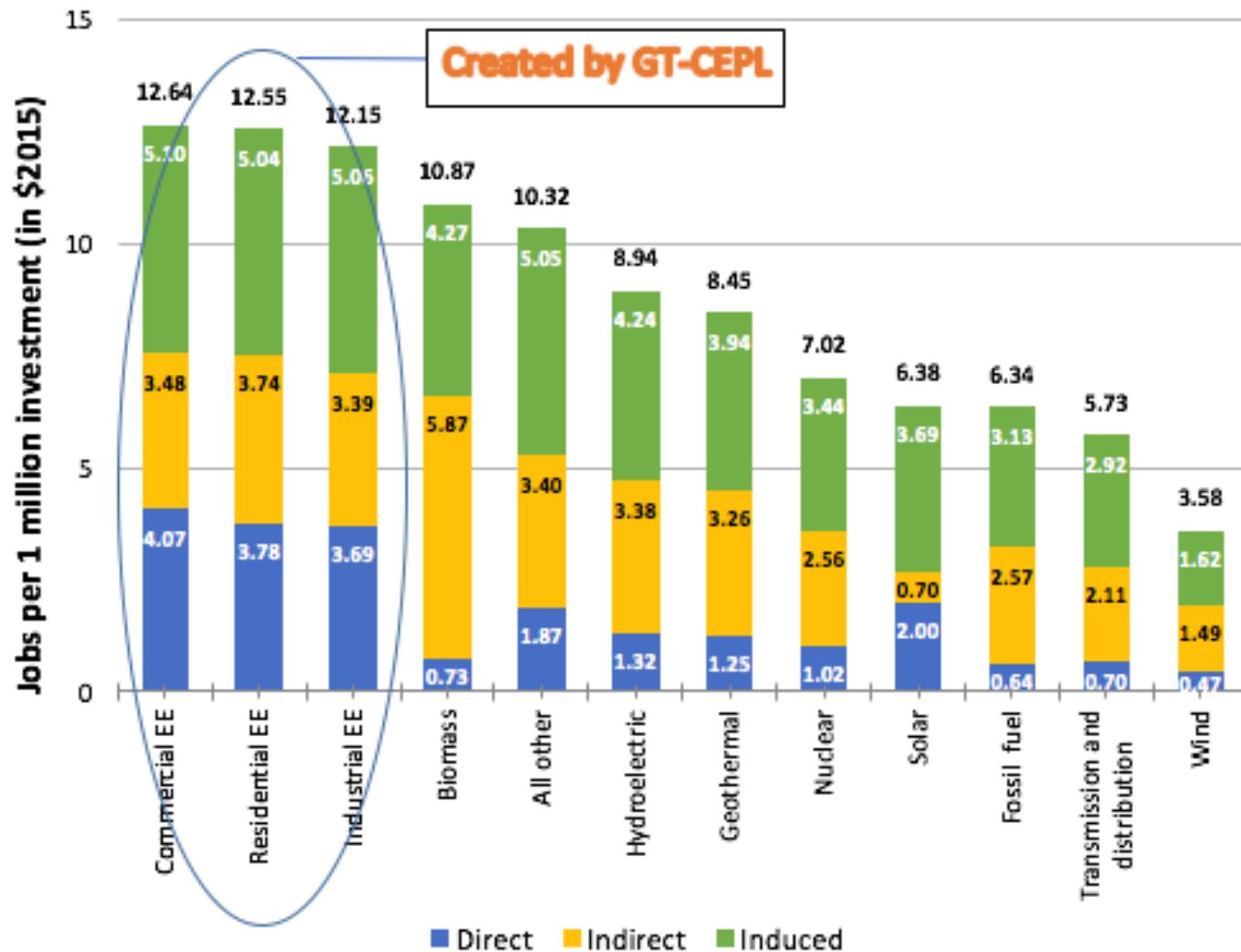
HAZLEHURST II



- The U.S. has about 260,000 workers in the solar industry
- (3,900 in Georgia in 2016).
- One out of every 50 new jobs added in the U.S. in 2016 was created by the solar industry.

Source: The Solar Foundation. 2017. *National Solar Jobs Census 2016*, available at: SolarJobsCensus.org.





Climate policies can cut CO₂ & reduce energy burdens

Types of Policies studied:

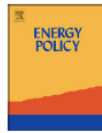
- Carbon caps: “Clean Power Plan”
- Carbon taxes: “Carbon Dividends Plan”
 - redistribute taxes on a per capita basis vs
 - redistribute per source of CO₂.

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journal homepage: www.elsevier.com/locate/enpol



Supply & Demand Policies can Work Well Together:

Climate Policy:	Cost per ton of CO ₂ Reduction
Carbon Cap	\$39.13
Carbon Cap + EE	-\$26.30
\$10 Carbon Tax	\$8.11
\$10 Carbon Tax + EE	-\$28.63

Cost of climate policy = utility resource costs + EE costs + administrative costs – carbon tax recycling (in \$2013)



Exploring the impact of energy efficiency as a carbon mitigation strategy in the U.S.



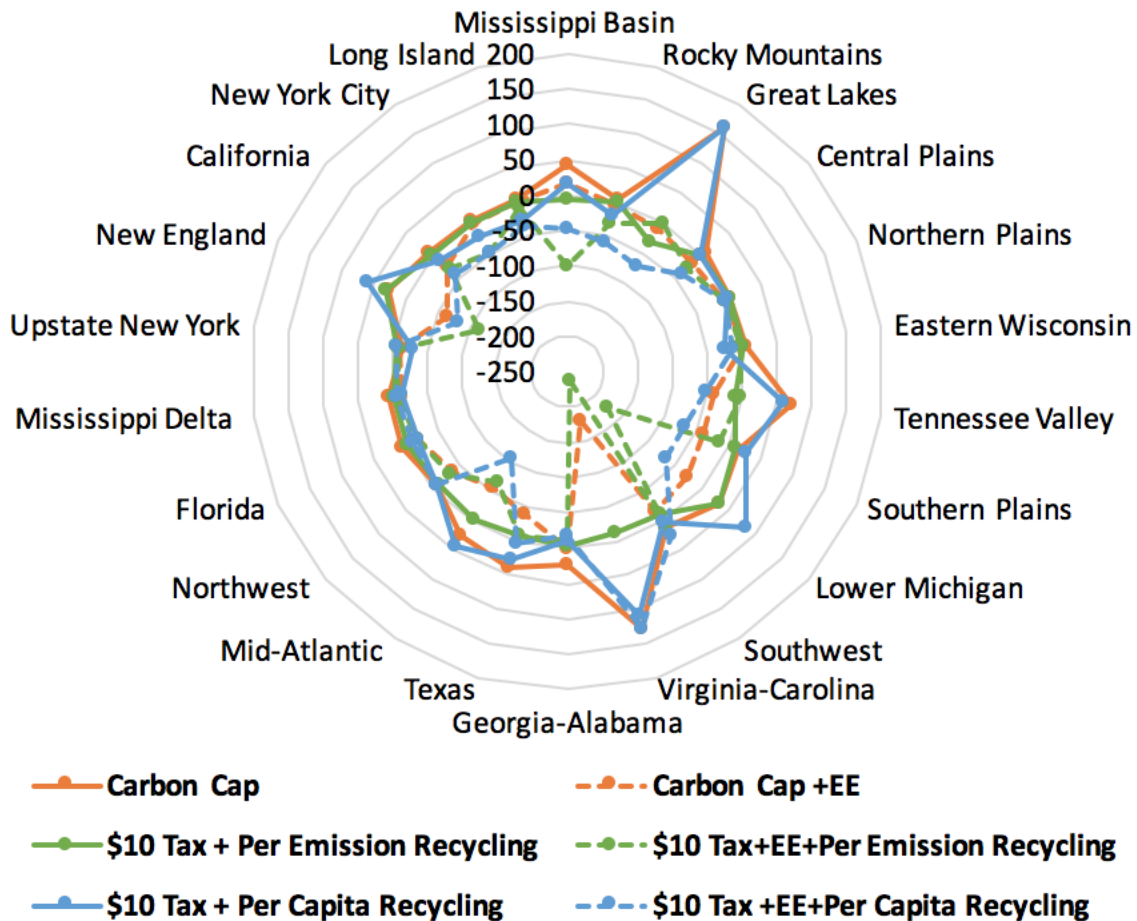
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Climate policy will have winners and losers, so policy design really matters

Climate policy costs per capita across regions in 2030



Electricity Market Module Regions



Estimated impacts in Georgia-Alabama range from a cost of ~\$25 per capita to a benefit of ~\$250 per capita.

For More Information

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